



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/792,300	03/03/2004	Chih-Hsi Lai	251702-1320	4675
24504	7590	08/11/2005	EXAMINER	
THOMAS, KAYDEN, HORSTEMEYER & RISLEY, LLP 100 GALLERIA PARKWAY, NW STE 1750 ATLANTA, GA 30339-5948			EDWARDS, ANTHONY Q	
			ART UNIT	PAPER NUMBER
			2835	

DATE MAILED: 08/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/792,300

Applicant(s)

LAI, CHIH-HSI

Examiner

Anthony Q. Edwards

Art Unit

2835

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 30 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 March 2004 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 12/3/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Objections*

Claims 14-20 are objected to because of the following informalities: independent claim 12 recites a "heat-dissipating module" in the preamble, whereas dependent claims 14-20 recite a "electronic device." Appropriate correction is required.

### *Claim Rejections - 35 USC § 112*

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 11 and 14 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The claims recite the "temperature of the first airflow is higher than that of the second airflow." Applicant's specification, however, clearly states that "as the first airflow F1 passes through the second heat source Q2 and the components E4, its temperature rises again and a second airflow F2 is formed to be with temperature higher than that of the first airflow F1."

*Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 12, 13, 15-17 and 20 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,678,157 to Bestwick. Referring to claim 12, Bestwick discloses a heat-dissipating module for providing heat transfer and convection on at least one first heat source (20) and at least one second heat source (not shown) located in a housing (see Fig. 5) by an initial airflow (see flow lines to the left of fan 48) of a surroundings, comprising at least one conductive assembly (22) disposed on the first heat source (20) to absorb heat transferring from the first heat source, at least one first fan assembly (48) located between the surroundings and the conductive assembly, wherein the first fan assembly (48) introduces the initial airflow of the surroundings into the conductive assembly to form at least one first airflow (i.e., airflow exiting assembly 22), see col. 5, lines 11-19), and the first airflow passes the second heat source (see col. 5, lines 28-30) to form at least one second airflow (i.e., airflow just prior to fan 12), and temperature ingredient is yielded between the first airflow and the second airflow. Bestwick also teaches “temperature ingredient yields” between the first airflow and the second airflow, since the first airflow still has capacity to absorb heat from the second heat source (see col. 5, lines 28-30), after absorbing sufficient heat energy from first heat source.

Art Unit: 2835

Referring to claim 13, Bestwick discloses a heat-dissipating module, wherein *the* temperature of the first heat source does not exceed that of the second heat source. See col. 5, lines 28-30.

Referring to claim 15, Bestwick discloses a heat-dissipating module, wherein the housing comprises an inlet (i.e., 18 in wall 16), and the first fan assembly (48) is disposed between the inlet and the conductive assembly (22). See Fig. 5 and col. 5, lines 12-16.

Referring to claim 16, Bestwick discloses a heat-dissipating module, wherein the conductive assembly (22) has a heat-transfer unit connected to the first heat source (20). See Fig. 5 and col. 5, lines 16-18.

Referring to claim 17, Bestwick discloses a heat-dissipating module, wherein the first heat source comprises a CPU. See col. 5, line 2.

Referring to claim 20, Fig. 5 of Bestwick shows a heat-dissipating module, further comprising a second fan assembly (12) disposed on one side of the housing conducting the second airflow to the surroundings.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 14, 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bestwick in view of U.S. Patent Application Publication No. 2005/0041391 to Wrycraft et al.

Art Unit: 2835

("Wrycraft" hereinafter). Referring to claim 14, as best understood by the Examiner, Bestwick teaches the invention substantially as claimed, except for the temperature of the first airflow being higher than that of the second airflow. Wrycraft discloses providing a heat-pipe to enhance the thermal conductivity of the heat sink 20 (see paragraph 0033). It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the conductive assembly of Bestwick to include a conductive pipe to draw heat away from the conductive assembly comprising the CPU, as taught by Wrycraft, to an area adjacent the second fan (12) of Bestwick, which would provide a lower temperature of the first airflow and a higher temperature of the second airflow, as the second airflow exits to the surroundings. This would allow more heat to be dissipated from the CPU module of Bestwick.

Referring to claim 18, Bestwick discloses the invention as claimed, except for the second heat source (i.e., "other components") specifically comprising a memory module. As mentioned above, Wrycraft teaches an electronics assembly with arrangement for air-cooling, wherein a first heat source (15) is cooled by an initial airflow, creating a heated first airflow and a second heat source comprising a dynamic random access memory (DRAM) 18 is cooled by the first airflow creating a second airflow. See Figs. 1 and 2 and paragraph [0030]. It would have been obvious to one having ordinary skill in the art at the time of the invention to provide cooling for a second heat source of Bestwick, wherein that second heat source is a memory module, as taught by Wrycraft, since the device of Wrycraft would provide more efficient use of memory modules in the system of Bestwick.

Referring to claim 19, Bestwick discloses the invention as claimed, except for further comprising a conductive pipe transferring heat from the conductive assembly to one side of the

Art Unit: 2835

first fan assembly. Wrycraft discloses providing heat-pipes to enhance the thermal conductivity of the heat sink 20 (see paragraph 0033). It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the conductive assembly of Bestwick to include a conductive pipe to transfer heat from the conductive assembly to one side of the first fan assembly, as taught by Wrycraft, since the device of Wrycraft would lower the temperature of the first airflow and, therefore, allow for greater heat dissipation of heat sources “downstream.”

Claims 1-7 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bestwick in view of U.S. Patent Application Publication No. 2003/0142476 to Tomioka et al. (“Tomoika” hereinafter). Referring to claim 1, Bestwick teaches an electronic device substantially as claimed, except for the device including a display unit. Tomioka (see Figs. 1-3) teaches providing heat-dissipating module for a portable electronic device having a display unit. It would have been obvious to one having ordinary skill in the art at the time of the invention to utilize heat-dissipating modules, such as the module of Bestwick in a portable computer having a display unit, as taught by Tomoika, to provide efficient cooling and maximum computing power of portable computers.

Referring to claim 2, Bestwick in view of Tomoika disclose an electronic device substantially as claimed. See the above rejection to claim 13.

Referring to claim 3, Bestwick in view of Tomoika disclose an electronic device substantially as claimed, including the first fan (48) being disposed near one side of the housing. See Fig. 5 of Bestwick.

Referring to claim 4, Bestwick in view of Tomoika disclose an electronic device substantially as claimed. See the above rejection to claim 15.

Referring to claim 5, Bestwick in view of Tomoika disclose an electronic device substantially as claimed. See the above rejection to claim 16.

Referring to claim 6, Bestwick in view of Tomoika disclose an electronic device substantially as claimed, including the heat-transfer unit comprising a fin structure. See col. 5, lines 16-22 of Bestwick.

Referring to claim 7, Bestwick in view of Tomoika disclose an electronic device substantially as claimed. See the above rejection to claim 17.

Referring to claim 10, Bestwick in view of Tomoika disclose an electronic device substantially as claimed. See the above rejection to claim 20.

Claims 8, 9 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bestwick in view of Tomoika, and further in view of Wrycraft. Referring to claim 8, see the above rejections to claim 18. Additionally, the second heat source comprising a memory module is met by Wrycraft. See Figs. 1 and 2 and paragraph [0030].

Referring to claim 9, see the above rejections to claim 19. Additionally, the conductive pipe transferring heat from the conductive assembly to one side of the first fan assembly is met by Wrycraft (see paragraph 0033).

Referring to claim 11, as best understood by the Examiner, Bestwick as modified, teaches the invention substantially as claimed, except for the temperature of the first airflow being higher than that of the second airflow. Wrycraft discloses providing a heat-pipe to enhance the thermal conductivity of the heat sink 20 (see paragraph 0033). It would have been obvious to one having

Art Unit: 2835

ordinary skill in the art at the time of the invention to further modify the conductive assembly of Bestwick to include a conductive pipe to draw heat away from the conductive assembly comprising the CPU, as taught by Wrycraft, to an area adjacent the second fan (12) of Bestwick, which would provide a lower temperature of the first airflow and a higher temperature of the second airflow, as the second airflow exits to the surroundings. This would allow more heat to be dissipated from the CPU module of Bestwick.


### *Conclusion*

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony Q. Edwards whose telephone number is 571-272-2042. The examiner can normally be reached on M-F (7:30-3:00) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynn D. Feild can be reached on 571-272-2800, ext. 35. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

August 3, 2005  
aqe

  
**LYNN FEILD**  
**SUPERVISORY PATENT EXAMINER**  
**TECHNOLOGY CENTER 2800**